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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,061	02/12/2002	Kun-soo Kim	1293.1315	2397

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EXAMINER	
PSITOS, ARISTOTELIS M	
ART UNIT	**PAPER NUMBER**
2653	

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,061	KIM ET AL.	
	Examiner	Art Unit	
	Aristotelis M. Psitos	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34,50-55 and 60-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *all of the above* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/2/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicants' response of 2/3/05 has been considered with the following results.

Information Disclosure Statement

The IDS of 5/2/05 has been received. Item AE as listed on attachment 1(g) has not been reviewed since it is not in English.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

In the following analysis, the examiner groups/identifies the following claims together by concept/limitation.

Group:

a) Claims 1, 68,72,75 and 76: drawn to an optical servo system wherein te is predicated upon the type of recording medium,

b) claims 2, 7,8 and 70-73: further identifying the type of medium as rom and writable,

c) claims 3,5: further identifying the signal processor,

d) claims 4,6, switching and controller ability,

e) claims 9-12: further identifying the photodetectors,

f) claims 14-21: identifying an i/v conversion ability,

g) claims 22-27: identifying first and second order diffracted light,

h) claims 29-34: phase difference between certain sub-light beams,

k) claims 50-55: identifying an optical path changing ability,

l) claims 65-67: identifying a first and second light source.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-3,5,29-34,50-52,54,66,67,68-76 are rejected under 35 U.S.C. 103(a) as being obvious over Ijima et al further considered with either Opheij et al or Tobita et al or Gutin.

The following analysis is made with respect to independent claim:

1

An optical recording/reproducing apparatus comprising:	title/abstract of Ijima et al
an optical pickup including	see figure 1 element 1
an optical splitting device which splits light emitted from a first light source into a	see col. 2, lines 21-39
source main light beam and	main beam
at least four source sub-light beams which are symmetrical with respect to the main light beam,	first –fourth preceding and succeeding beams see secondary references
and irradiates the split source main and source sub-light beams on a recording medium, and	function follows
a light detection device which receives a reflected main light beam and the reflected sub-light beams reflected by the recording medium,	detecting elements 17-21

and outputs detection signals
corresponding to the received reflected main
and sub-light beams, so as to detect tracking error
signals in a three-beam method and
one of a push-pull method and an improved push-pull
method; and

see te operation

a signal processor, which receives the detection signals
output by the light detection
device and
detects the tracking error signals in
the three-beam method and the one of the push-
pull method and the improved push-pull method,

and otherwise detects selectively the tracking
error signal in the three-beam method and the one of
the push-pull method and the improved
push-pull method, so as to realize an optimal tracking servo-control.

As analyzed above:

Ijima et al discloses an optical system wherein various types of te servo systems/abilities are appropriately engaged so as to detect such a condition predicated upon medium type. Applicants' attention is drawn to figures 1, 3,8 and 14 and the associated disclosure.

Wherein:

a) Ijima et al provides for a plurality of light sources, see col 9, lines 36 plus with respect to claims in the above identified group k; col 23 lines 32 plus with respect to claims in the above identified group e. Furthermore, applications attention is drawn to the discussion with respect to figure 1 starting at col. 6

line 60 to col. 8 line 61 wherein the reference discusses a three beam te ability, a differential push pull te ability and a differential phase detection te ability. Figure 14 depicts in table format the ability of various te abilities predicated upon medium type.

As amended, as noted in the above analysis, the emitted beam is now split into a main beam and at least 4 sub beams. Ijima et al doesn't so divide on the emitting beam. Only into the standard 3 beam (main and two sunbeams).

Nevertheless, either Opheij et al – see his discussion with respect to strips 15/16 and starting at col. 4 lines 61-65 and col. 11 line 10 plus, teach such a capability for increasing the scanning efficiency.

Alternatively Tobita et al – see his discussion with respect to his diff. Grating element 21 and generation of the 5 beams starting at col. 8 line 40 – plus and see also figure 2, for the same capability of increasing the scanning/locating efficiency.

Finally, Gutin also teaches in this environment for tracking purposes the ability of having an electronically reconfigurable diffraction grating so as to generate more than the normal 3 beams, see the discussion in the abstract – as well as those sections in the disclosure with respect to tracking and more than the first and zero order diffraction orders.

It would have been obvious to modify the base system of Ijima et al with the above recognized alternative diffraction order beam splitting capability, so as to split the emitting beam, as opposed to the additional splitting of the returning beam. Such is considered a selection of beam splitting devices and obvious to one of ordinary skill in the art, i.e., not of patentable distinction (selection between alternative beam splitters). Such can reduce the overall footprint/weight/complexity of the original beam splitting system of Ijima et al.

Such meets the limitations of claims 1,2, 68,69,70,71,72,73,74,75 and 76.

With respect to claims 3,5 (group c claims), applicants' attention is drawn to the discussion with respect to the photodetector array and the ability of such in having a main detector (further subdivided), a first additional detector (also further subdivided), and a second additional detector (also further subdivided).

With respect to group g claims, it is noted that the phase difference between the sub-beams is present.

With respect to group h claims, there is a main photodetector, and corresponding sub-photodetectors for receiving ones of the sub-light beams.

The first and second light sources have been previously identified as has been the current to voltage conversion ability.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 1,2,16,17, 29,30,50-52,60-61,66-76 are rejected under 35 U.S.C. 103(a) as being obvious over Izumi et al further considered with either Opheij et al or Tobita et al.

With respect to claims 1,2,68-76, applicants' attention is also drawn to the discussion in Izumi et al starting at col. 3 line 20 and continuing at least through col. 5 line 8. This describes an appropriate te selection predicated upon medium type – see col. the discussion with respect to figure 9 commencing at col. 14 line 16. The examiner interprets the ability of the switching unit to operate appropriately as inherently meeting the terminology of the independent claims as well as that of the dependent claims noted in groups a & b as identified above.

With respect to claims 16 and 17, (group f claims), such an ability is further depicted in figure 9 of the Izumi et al reference, see the discussion with respect to such elements 40-43 at col. 15 lines 6 plus.

With respect to claims 29 and 30 (group h claims), because the Izumi et al reference discusses standard cds and their appropriate track format (pitch), the phase difference is inherently present.

With respect to claims 50-51 (group k claims), the optical path-changing element is interpreted as depicted in figure 1 (element 13 for instance), while the objective lens is element 6.

With respect to claims 60 and 61, the astigmatic ability is depicted/discussed with respect to the focusing ability – see, for example, the discussion with respect to figure 9, and col. 16 lines 18 plus for

further details. The examiner interprets the formula specified (mathematical relationship) in claim 61 as purely a rewriting of the formula describing the operation herein.

With respect to claims 66 and 67, the second light beam is discussed with respect to the cd and dvd formatted discs.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

3. Claims 3, 5, 9-15, 20,22-24,26,31,33,52,54 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 1,2,16,17, 29,30,35,37,39,41,43-46, 48, 50-51,56,58,60,61,68-76 as stated in paragraph 2 above, and further in view of Shindo.

With respect to claims 3, and 5, the further second order diffracted light (the claimed second two sub0light beams) is taught by Shindo – see the discussion with respect to the spots ss1,2,3,4 as noted in figure 4. Furthermore, Shindo uses such in his te signal processing – see the discussion with respect to figure 5.

It would have been obvious to modify the base system of Izumi et al with the additional teaching from Shindo et al, motivation is as discussed in Shindo et al – see for example starting at col. 2 line 53.

The sub-photodetector arrangement of claims 9-12, and 13, as well as claims 22-24 and 26 are also depicted in Shindo et al for appropriate detection of the second order diffracted light beam.

With respect to claims 14 and 15, these claims are part of group f and are present as discussed above.

With respect to claims 18 & 20, these claims are part of group f claims identified above and as discussed in the base reference are already present.

With respect to claims 31 and 33, these are part of group h claims, and are present in the base reference as stated above.

With respect to claims 52 and 54, these are part of group k claims and as stated above are present in the base reference.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

4. Claims 4,6-8,19,21,25,27,32,34,53 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 3, 5, 11,12, 18,20,22,24,26,31,33,52,54 as stated in paragraph 3 above, and further in view of Masakado.

With respect to claims 4,6, although the above combination provides for switching, the switch device is not depicted as claimed.

Masakado, in figure 3 for instance, teaches the ability of having appropriate switching devices located as required. The control means (CPU) provides the necessary controlling signal.

It would have been obvious to modify the base system as stated above in paragraph 3 with the additional switching location ability as further taught by Masakado. The placement of the switching device is considered merely a relocation of the switching ability provided for in the base references, which lead to no unexpected results.

With respect to claims 7 & 8, such is already present in the discussion of the base reference and no further motivation/change is necessary.

With respect to claims 19 & 20, these are part of group f claims and such is present in the base reference.

With respect to claims 25 & 27, these are part of group g claims and such is present in the base reference.

With respect to claims 32 & 34, these are part of group h claims and such is present in the base reference.

With respect to claims 53 & 55, these are part of group k claims and such is present in the base reference.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 60 above, and further in view of Nakai.

With respect to the limitations of claim 28 although there is no specific mentioning of the diffraction efficiency in the above noted references, the ability in providing appropriate efficiencies for diffraction elements is well known as taught by the Nakai reference – see the discussion with respect to the diffraction efficiency table in figure 2 vs. various wavelengths.

It would have been obvious to modify the base system as stated above in paragraph 8 with the additional ability of Nakai and provide the appropriate diffraction efficiency as required. The diffraction ration is an optimization of system parameters and obvious to those of ordinary skill in the art – see ***In re Peterson, 65 USPQ 1379.***

6. Claims 62, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 50 as stated in paragraph 8 above, and further in view of Shimamo et al.

The above reference relied upon in paragraph 2 lack both a first and second optical path-changing device.

Shimamo et al also discloses in this environment the ability of having a plurality of te abilities appropriately selected/engaged – see figure 21 and its discussion. Furthermore, the reference also provides for a second different wavelength signal source – see figure 20 and its discussion along with appropriate signal path changing elements, element 2007 and 2005.

It would have been obvious to modify the base system as discussed above in paragraph 8 with the additional teaching with respect to the optical path-changing device, motivation is to appropriately illuminate the record medium.

With respect to claims 62 and 65, first collimating lens and various wavelengths due to cd, of dvd format are taught in the above references discussed in paragraph 8 as well as additionally taught by the

Shimamo et al document. Since such a limitation is already present, no further motivation is deemed necessary.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

7. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamo et al as applied to claim 63 above, and further in view of Ohba.

The use/ability of a collimating lens for its appropriate use in this environment is also taught by the Ohba reference.

It would have been obvious to modify the base system as relied upon in paragraph 10 with this additional teaching, motivation is to provide for a collimating lens for each light source to perform the appropriate light collimating function desired in this environment as further discussed in Ohba.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In the above rejections, the examiner has presented 3 secondary references for teaching the ability of splitting the emitting beam into a plurality of sub beams. It is noted that

a) JP 08-221774 – also teaches such – see the abstract –

b) JP 2000-348367 – see the MAT (machine assisted translation) with respect to paragraphs 41 plus which also teach such,

c) Yanagawa (6088310),

d) Ogasawara et al (6218655) .

Any of which could also be relied upon as alternative secondary references for such a teaching.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

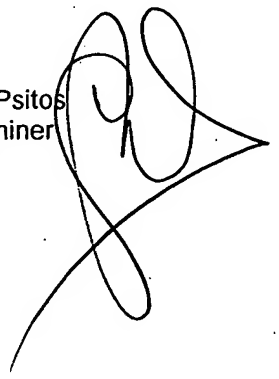
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thursday 8 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos
Primary Examiner
Art Unit 2653



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